



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/068,838	02/11/2002	Takashi Tanaka	219418US3	9017

22850 7590 05/02/2005

OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.  
1940 DUKE STREET  
ALEXANDRIA, VA 22314

EXAMINER

LAMB, BRENDA A

ART UNIT PAPER NUMBER

1734

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

26 ml

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/068,838	TANAKA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Brenda A. Lamb	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 December 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 and 13-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,6-8,13,14 and 16 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 5 is confusing since it is unclear how the exit recited at line 2 of claim 5 relates to the exit recited in claim 2 upon which claim 5 depends.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 4-5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over La Bianca in view of Wills.

La Bianca teaches the design of an apparatus for forming a coating film on a substrate by applying a coating liquid to the substrate which is comprised of the following elements: a holding means 4 for holding the substrate horizontally, a rotation

mechanism 8 for rotating the holding means such that the substrate rotates in a horizontal plane; and an atomizing spray nozzle for dropping the coating liquid onto the substrate as shown in Figure 1. La Bianca fails to teach the nozzle in the apparatus includes a gyrating force generation means for providing a gyrating force to the coating such that coating continue to gyrate after being dropped from the nozzle. However, Willis teaches a spray nozzle includes a gyrating force gyrating means (element 6) for giving a gyrating force to the coating material to applied to the substrate. Willis teaches the gyrating force gyrating means continues to rotate the coating after being dropped from the nozzle. The recitation that the gyrating force gyrating means is positioned adjacent an exit of the nozzle does not define applicant's invention over Willis since Willis shows in his Figures the vanes are positioned or spaced from the inlet opening of the spray head 1 which reads no nozzle as defined by the American Heritage Dictionary, Second Ed., that is a projecting part with a opening, as at the end of a hose, through which something is discharged, and the vane is positioned adjacent or near the exit or exit portion of the nozzle. Therefore, it would have been obvious to modify the La Bianca apparatus by substituting its atomizing spray head/nozzle for the Willis spray head/nozzle with gyrating force generation means (element 6) for the taught advantage of the Wills spray head – the spray head which does not require a power source to atomize the coating material. With respect to claim 2, the same rejection applied to claim 1 is applied here. Willis shows a plurality of vanes fins 6 are arranged on inner wall of the nozzle which form a groove between the adjacent fins so as to flow the coating in a spiral manner. With respect to claim 4, the inlet of Willis is configured to

accept a coating liquid and dilution liquid when separately supplied to the nozzle from separate source. Willis nozzle is capable of mixing during passing through spiral groove thereby providing a gyrating force. With respect to claim 15, it would have been obvious to modify the La Bianca apparatus by substituting its atomizing spray/nozzle for the Willis atomizing spray head/nozzle with gyrating force generation means (element 6) for the taught advantage of the Willis spray head – the Willis atomizing spray head does not require a power source to atomize the coating material. Willis shows a plurality of vanes fins so as to flow the coating in a spiral manner. The inlet of Willis is configured to accept a coating liquid and dilution liquid when separately supplied to the nozzle from separate source. Willis nozzle is capable of mixing components of the coating during passing through spiral groove thereby providing a gyrating force. With respect to claim 5, absent a clear recitation of how the exit at line 2 of claim 5 relates to the exit at lines 7–8 of claim 2, Willis shows a portion of the hole of nozzle is tapered.

Claims 1, 2, 4 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Shields.

Suzuki teaches the design of an apparatus comprised a nozzle configured to drop a viscous coating liquid on the surface of the substrate; a holding means for holding the substrate horizontal; and a rotation mechanism configured to rotate the holding means such that the substrate held by the holding means is allowed to rotate in a horizontal plane. Suzuki fails to teach a gyration force generation means for giving a gyrating force to the coating liquid dropped from the nozzle. However, Shields teaches the design of an apparatus for forming a coating film comprised of the following

Art Unit: 1734

elements: a nozzle configured to drop a viscous coating liquid on the surface of the substrate; and a gyration force generation means (elements 13-14 and 16) for giving a gyrating force to the coating liquid dropped from the nozzle. Shields shows the gyrating force gyrating means continues to rotate the coating after being dropped from the nozzle as shown in Figure 2. Shields fails to teach a holding means for holding the substrate horizontally and a rotation mechanism configured to rotate the holding means such that the substrate held by the holding means is allowed to rotate in a horizontal plane. The recitation that the gyrating force gyrating means is positioned adjacent an exit of the nozzle does not define applicant's invention over Shields since Shields shows in his Figures gyrating force gyrating means are positioned or spaced adjacent the exit of the applicator nozzle as shown in Figure 1 with elements 12-17 and 21 reading on a nozzle as defined by The American Heritage Dictionary, Second Ed., that is a projecting part with a opening, as at the end of a hose, through which something is discharged, and the gyrating force gyrating means which includes grooves on the inner wall of the nozzle are positioned adjacent or near the exit or exit portion of the nozzle. Therefore, it would have been obvious to modify Suzuki apparatus by substituting its viscous coating applicator with the Shields applicator for the taught advantage of greater control of the thickness of the applied coating. Thus claim 1 is obvious over the above cited references. With respect to claim 2, the same rejection applied to claim 1 is applied here. Shields shows gyrating force gyrating means which includes spiral groove 14 formed on the inner wall of the spray head or nozzle and shows the gyrating force gyrating means continues to rotate the coating after being dropped from the nozzle as

Art Unit: 1734

shown in Figure 2. With respect to claims 4 and 15, the inlet of Shields nozzle is configured to accept a coating liquid and dilution liquid when separately supplied from separate sources.

Applicant's arguments filed 12/13/2004 have been fully considered but they are not persuasive.

Applicant's argument that Shields shows an impeller 13 which is part of the gyrating force gyrating means is disposed apart from the exit of the nozzle is found to be non-persuasive. Shields teaches the impeller 13 and head 16 rotate together. The term "nozzle" as defined by the American Heritage Dictionary is a projecting part with a opening, as at the end of a hose, through which something is discharged, and the Shields gyrating force gyrating means which includes grooves on the inner wall of the nozzle (nozzle includes elements 12-17 and 21) and these grooves as shown are positioned adjacent or near the exit or exit portion of the nozzle which broadly reads on portion of the nozzle positioned or spaced from the inlet opening wherein the coating enter the nozzle.

Applicant's arguments that Willis fails to teach that the vanes are adjacent the exit of the nozzle of the nozzle is found to be non-persuasive. The recitation that the gyrating force gyrating means is positioned adjacent an exit of the nozzle does not defined applicant's invention over Willis since the term exit or exit portion is so broad that it reads on portion of the nozzle spaced from the inlet opening of the spray head 1 wherein the material to be applied is received within the nozzle and therefore the Willis gyrating force gyrating means is positioned adjacent an exit of the nozzle.

Claims 3, 6-8, 13, 14 and 16 are allowed.

The prior art fails to teach or suggest an apparatus for forming a coating film which is comprised of the following elements: a holding means for holding a substrate horizontally; a rotation mechanism configured to rotate the holding means such that the substrate held by the holding means is allowed to rotate in a horizontal plane; a nozzle configured to drop a coating through a hole on a surface of the substrate; a spiral groove formed on an inner wall of the hole of the nozzle; and a center rod provided at a center of the hole and configured to flow the coating along the inner wall of the hole, wherein the nozzle is configured to drop the coating liquid with a gyration in accordance with the spiral groove.

The prior art fails to teach or suggest an apparatus for forming a coating film which is comprised of the following elements: a holding means for holding a substrate horizontally; a rotation mechanism configured to rotate the holding means such that the substrate held by the holding means is allowed to rotate in a horizontal plane; a nozzle configured to drop a coating through a hole on a surface of the substrate; a spiral groove formed on an inner wall of the hole of the nozzle; and a center rod provided at a center of the hole and configured to flow the coating along the inner wall of the hole, the center rod extending to a position adjacent an exit of the nozzle; and a plurality of fins disposed on the center rod and configured to flow the coating liquid in a spiral manner, the plurality of fins extending to a position adjacent the exit of the nozzle.

The prior art fails to teach or suggest an apparatus for forming a coating film which is comprised of the following elements: a holder configured to hold a substrate

Art Unit: 1734

horizontally; a rotation mechanism configured to rotate the holder such that the substrate held by the holder is allowed to rotate in a horizontal plane; a nozzle configured to drop a coating on a surface of the substrate; and a gyrating force generation means for giving a gyrating force to the coating such that that the coating continues to gyrate after being dropped from the nozzle, the gyrating force generation means extending to a position adjacent an exit of the nozzle; and a center rod provided at a center of the hole and configured to flow the coating along the inner wall of the nozzle.

The prior art fails to teach or suggest an apparatus for forming a coating film which is comprised of the following elements: a holder configured to hold a substrate horizontally; a rotation mechanism configured to rotate the holder such that the substrate held by the holder is allowed to rotate in a horizontal plane; a nozzle configured to drop the coating through a hole on a surface of the substrate, wherein a spiral groove formed on an inner wall of the hole of the nozzle; and a center rod provided at a center of the hole and configured to flow the coating along the inner wall of the hole.

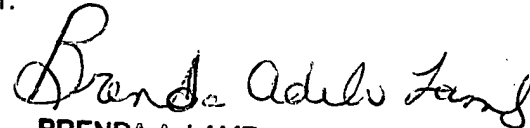
Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

Art Unit: 1734

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication should be directed to Brenda A Lamb at telephone number (571)-272-1231. The examiner can normally be reached on Monday and Wednesday thru Friday with alternate Tuesdays off.

  
**BRENDA A. LAMB**  
**PRIMARY EXAMINER**

B. A. Lamb/af  
April 6, 2005